These rejections and objections are respectfully traversed in view of the above amendments and the arguments which follow.

A. New Search Not Required

Claim 5 has been cancelled and the essential feature of claim 5 relating to charge equalization in the semiconductor material layer has been incorporated in claim 1 and clarified by the above amendment. Because this charge equalization limitation was already searched and examined relative to cancelled claim 5, consideration of amended claim 1 is proper after final as it should not raise new issues.

B. Claims 1-3, 8 and 9 Contain a Charge Equalization Limitation not Anticipated by *Festa*.

Claim 1, as now amended, contains the following limitation:

> wherein said doped regions are optimally doped to equalize the charge in said semiconductor material layer so that the electric field upon the entire volume of said semiconductor material layer is constant and also equal to the critical electric field.

No new matter has been added by this amendment, support for which can be found in the specification at page 5, lines 27 through page 6, line 2. Claims 2, 3, 8 and 9 include this feature through their dependence on claim 1.

Because this limitation is not taught by *Festa*, claims 1-3, 8 and 9 are not anticipated by *Festa*. Thus, withdrawal of the 35 U.S.C. § 102(b) rejection of claims 1-3, 8 and 9 over *Festa* is respectfully requested.

C. Claims 1-4 and 6-9 are Non-Obvious over the Combination of *Werner* in view of *Festa*.

The obviousness rejection of previously pending claims 1-9 relative to now cancelled claim 5, as clarified by the amendment to claim 1 above, is respectfully traversed. The rejection of previously pending claim 5 is premised upon contentions at page 4 of the Office Action that *Werner* (a) shows doped regions that equalize the charges in the semiconductor material and (b) teaches that there are no positive carriers and no negative carriers.

However, as noted above, amended claim 1 contains the following

clarifying limitation:

> wherein said doped regions are optimally doped to equalize the charge in said semiconductor material layer so that the electric field upon the entire volume of said semiconductor material layer is constant and also equal to the critical electric field.

This limitation requires both an equalized charge in the semiconductor layer and a critical electric field, which would by its very nature comprise a non-zero charge. In other words, the equalized charge would be, as limited above, non-zero.

Since neither *Werner* nor *Festa* teach or suggest the above limitation and are silent with respect to the doping density limitations of the doped regions as now claimed, amended claim 1 is patentably distinguishable over the combination of *Werner* and *Festa*. Claims 2-4 and 6-9 are also believed allowable under as depending from an allowable base claim. Withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-4 and 6-9 is thus proper and respectfully requested.

D. Drawing Objection,

The enclosed Formal Drawings include the requested "PRIOR ART" labels.

E. Conclusion,

Although no fee is believed due for this filing, any fee deficiency associated with this transmittal may be charged to Deposit Acct. No. 50-1123.

Respectfully submitted,

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Carol W. Burton, Reg. No. 35,465
Hogan & Hartson L.L.P.
1200 17th Street, Suite 1500
Denver, Colorado 80202
Telephone: (303) 454-2454
Facsimile: (303) 899-7333

MARKED UP COPY OF AMENDED CLAIM

1. (Twice amended) A Schottky barrier diode comprising:

a substrate region of a first conductivity type formed underneath a semiconductor material layer of the same conductivity type;

a metal layer; and

at least two doped regions of a second conductive type formed in said semiconductor material layer, each one of said doped regions being disposed under said metal layer and being separated from the other doped region and said substrate region by portions of said semiconductor layer[.],

wherein said doped regions are optimally doped to equalize the charge in said semiconductor material layer so that the electric field upon the entire volume of said semiconductor material layer is constant and also equal to the critical electric field.